

Part 1

A class wants to raise money for their school trip. They are considering raising money by selling raffle tickets for an Xbox, but before they decide to have a raffle, they want to estimate ***how many students in the whole school would buy a ticket.*** They decide to do a survey to find out first. The school has 600 students in grades 9-12 with 150 students in each year.

1. Shannon got the names of all 600 students in the school and put them on individual slips of paper, which she placed in a hat. Then, she pulled out 60 names. What type of sampling strategy did Shannon use? What are the pros and cons of Shannon's survey? Explain your answer using statistical reasoning.
2. Jake randomly asked 10 students from each of the following after-school clubs: Guitar club, Computer Games Club, Ping Pong Club and Yearbook Club. What type of sampling strategy did Jake use? What are the pros and cons of Jake's survey? Explain your answer using statistical reasoning.
3. Adam asked all 150 students in 10th grade. What type of sampling strategy did Adam use? What are the pros and cons of Adam's survey? Explain your answer using statistical reasoning.
4. Raffi asked 60 of his friends. What type of sampling strategy did Raffi use? What are the pros and cons of Raffi's survey? Explain your answer using statistical reasoning.
5. Claire set up a booth outside the cafeteria. Anyone who wanted to stop and fill out a survey could. She stopped collecting surveys when she got 60 kids to complete them. This is called a **volunteer response sample**, which is where only those who want to respond are sampled. Can you think of any pros and cons of this type of sample? Explain your answer using statistical reasoning.
6. Monique went to every classroom during the day and asked all students. What type of sampling strategy did Monique use? What are the pros and cons of Monique's survey? Explain your answer using statistical reasoning.
7. How would you choose to sample students? How many would you sample? Explain your answers.

Part 2

Giant Company is a company that makes widgets. The design team at Giant Company wants to know what colors they should offer their latest widget in. They have hired you to help them make this decision because of your prowess with statistical sampling.

The design team would like to see several options for collecting data (i.e., sampling) before they make a decision, so develop a brief plan for each of the different types of sampling listed below. For each, be sure to discuss the population the plan targets, who will get sampled, and pros and cons of each strategy.

Random Sampling

Stratified Random Sampling

Cluster Sampling

Systematic Sampling

Convenience Sampling